

**dpr** Introduction - A Comparison 

- DPR
- Commissioners are local enforcement agency
- County Agricultural Biologists
- Fish and Game
- No local enforcement agency
- Fish and Game Wardens
- Fish and Game Biologists

8/2001 PWIRP Training 2

**dpr** Government Agencies State 

- Pesticide Regulation
- Food and Agriculture
  - Center for Analytical Chemistry
- Attorney General
- Environmental Task Forces
- Cal-EPA
  - DTSC, SWQCB
  - CARB, IWMB
- Fish and Game
- Attorney General
- Environmental Task Forces
- Regional Water Quality Control Boards
- OES
- Department of Forestry

8/2001 PWIRP Training 3

**dpr** Government Agencies Federal 

- US EPA
- USDA
- US Fish & Wildlife Service
- Army Corps of Engineers
- Coast Guard
- FBI




8/2001 PWIRP Training 4

**dpr** Government Agencies 

- U.S. Interior, Fish and Wildlife Service
- National Oceanic and Atmospheric Agency
  - National Marine Fisheries Service
- U.S. Geological Survey
  - Biological Resources Division




8/2001 PWIRP Training 5

**dpr** DPR/DFG/CACASA MOU 

- Notification of pesticide incidents
- Technical and policy consultations
- Exempts use of a pesticide as defined in FAC § 12753 for purposes of F&GC § 5650
- Mitigation measures
- F&G represented on
  - Pesticide Review and Evaluation Committee



8/2001 PWIRP Training 6

## Contacts

- Regional Offices
  - Anaheim (714) 279-7690
  - Fresno (559) 445-5401
  - West Sacramento (916) 372-6892
- Dispatch
  - (916) 445-0045
  - Dispatch automatically notifies OES and other agencies



8/2001
 PWIRP Training
 7

## Roles and Responsibilities - DFG

- Wardens
- Emphasis on criminal investigations
- Incident Command System
- Pesticide Investigations Unit

8/2001
 PWIRP Training
 8

## Roles and Responsibilities - DPR

- A Department in Cal EPA
- Enforcement branch
- County Agricultural Commissioners
- Emphasis on Civil Penalties

8/2001
 PWIRP Training
 9




## Roles and Responsibilities - County Agricultural Commissioner

- Enforce pesticide laws and regulations
- Certify applicators
- Issue Restricted Materials Permits
- Approve or deny Notices of Intent
- Monitor Pesticide Use Reports
- Register licensees
- Inspect applications, equipment and records

8/2001
 PWIRP Training
 10




## Laws and Regulations

- Food and Agriculture Code
- Title 3, California Code of Regulations
- FIFRA
- 40CFR
- Fish and Game Code
- Title 14, California Code of Regulations
- Migratory Bird Treaty Act
- Endangered Species Act

8/2001
 PWIRP Training
 11





## Types of pesticides and their uses



- Use Category
  - Insecticides - diazinon
  - Fungicides - copper sulfate
  - Herbicides - princep
  - Rodenticides - diphacinone
  - Antimicrobials - chlorine

8/2001

PWIRP Training

13



## Types of pesticides and their uses



- Chemical Class
  - Organophosphates - Lorsban, Guthion
  - Carbamates - Furadan, Sevin
  - Anti-coagulants - Ramik, Rozol

8/2001

PWIRP Training

14



## Restricted Materials



- Some pesticides classified “Restricted Use Pesticides” by either US EPA or DPR
- Reasons for “Restriction” include:
  - Hazards to applicators or farm workers
  - Hazards to domestic animals (inc. bees) or crops
  - Hazards to environment from drift to streams, lakes, or wildlife sanctuaries

8/2001

PWIRP Training

15



## Restricted Materials



- May only be used by certified commercial or certified private applicators
- Use requires a Restricted Materials Permit (RMP) issued by the local County Agricultural Commissioner’s (CAC) Office
- Exceptions exist, based on formulation and container size for some materials
- There are some permit exemptions

8/2001

PWIRP Training

16



## Useful Paper Trail



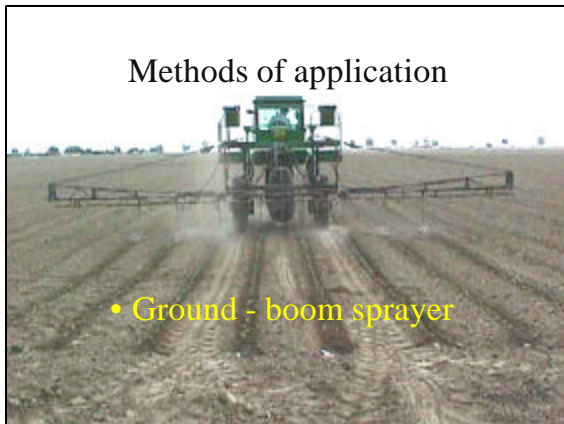
- Restricted permit-NOI-PUR paper trail
- Knowledge of local conditions and practices
- Most useful to DFG
- Can tell us:
  - What pesticide was applied
  - To what crop
  - When it was applied
  - How it was applied
  - Who applied it


8/2001

PWIRP Training

17



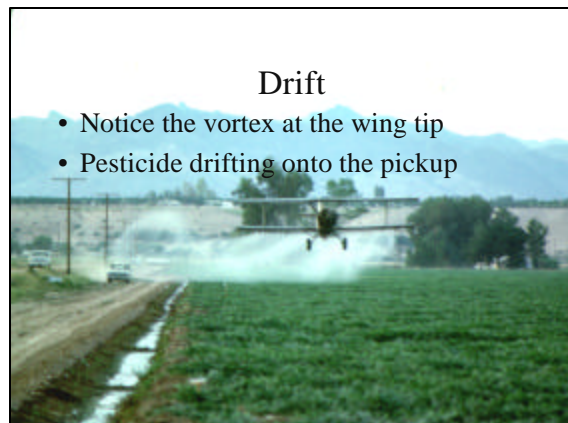



**dpr** 

## Off Site Movement

- Pesticides move off target by:
  - Drift
    - Wind
    - Heat Inversion
    - Fog
  - Volatilization (rapid evaporation at normal temperature & pressures)
  - In Runoff Water
  - Soil Movement

8/2001 PWIRP Training 25



**dpr** 

## Investigations

- CAC and DPR investigate all pesticide incidents
- Priority Investigations - MOU with US EPA for "priorities"
- Trigger levels
- Pollution Response Manual
- Levels 1, 2, 3


8/2001 PWIRP Training 27

**dpr** 

## CENTRAL LAWS

- FAC § 12973
- The use of any pesticide shall not conflict with any labeling...
- F&G § 2000
- Unlawful to take fish or game except under prescribed conditions


8/2001 PWIRP Training 28

**dpr** 

## F&G Pollution Response Manual

- Incident Command System (ICS)
  - Field level management
  - Multi-agency
  - Multi-jurisdictional
  - Emergencies
  - Three levels of response

8/2001 PWIRP Training 29



**dpr** 

## ICS Level 1

- Small
- Local impact
- No "special concern" wildlife impact
- No Prop 65 chemicals involved

8/2001 PWIRP Training 30





## ICS Level 2

- Moderate to large
- Impact on “special concern” wildlife
- Prop 65 chemicals involved
- Local interest


8/2001
PWIRP Training
31

## ICS Level 3

- Very large
- Impact on “special concern” wildlife
- Prop 65 chemicals involved
- Statewide or national interest,

8/2001
PWIRP Training
32





## Priority Investigations





Any Pesticide Incident with mortality level that exceeds:

**Non Target Birds**

– 50




8/2001
PWIRP Training
33

## Priority Investigations

- Non-Target Fish
  - 500
- Non-Target = unintended recipient of a pesticide application








## Priority Investigations



- 1 endangered or threatened species

## Priority Investigations

- Domesticated, Game or other non-target animals
  - 5

8/2001
PWIRP Training
36

**dpr** References

- Investigative Techniques Manual
- Investigative Sampling Manual
- EPA MOU for priority incidents
- PWIRP Agreement w/ CACASA/DFG
- Pollution Response Manual
- Natural Diversity Database
- County Bulletins
- ASTM document

8/2001 PWIRP Training 37

**dpr** ASTM Document

- American Society for Testing Materials
- Fish and Wildlife losses
  - Fish kills, pesticide and non-pesticide
  - Wildlife losses
    - Non-pesticide
    - Primary exposure to pesticides
    - Secondary exposure to pesticides

8/2001 PWIRP Training 38

**dpr** ASTM Document

- Sampling
  - Who to contact
- Shipping samples

8/2001 PWIRP Training 39



**dpr** Causes of Wildlife Mortality

- Biological agents
  - Disease, plant toxins
- Physical and natural agents
  - lightning, food shortage, gunshot
- Chemical agents
  - Mine waste, pollution, pesticides

8/2001 PWIRP Training 41

**dpr** Causes of Fish Mortality

- Biological agents
  - Pathogens, disease, parasites
- Physical and natural agents
  - D.O., temperature turnover, gas supersaturation
- Chemical agents
  - Sewage, mine waste, pollution, fertilizers, pesticides

8/2001 PWIRP Training 42

## dpr Mechanisms of Exposure

- Inhalation
  - Drifting particulates, toxic gases
- Dermal absorption
  - Drift, direct contact
- Ingestion
  - Consuming prey or forage, drinking contaminated water, grooming

8/2001

PWIRP Training

43

## dpr Types of Exposure

- Primary (Direct exposure to chemical)
  - Deer drinks toxin in water
  - Duck eats pesticide granules as grit
  - Fish exposed to copper sulfate in canal

8/2001

PWIRP Training

44

## dpr Types of Exposure

- Secondary (Consuming prey exposed to chemical)
  - Hawk eats rat which ate anticoagulant
  - Eagle eats duck which ate pesticide granules
  - Egret eats fish killed by chemical

8/2001

PWIRP Training

45

## dpr Sampling Equipment

- Glass Jars
- Paper/plastic bags
- Insulated Coolers
- PPE – gloves, coveralls, eye protection
- Foil
- Camera
- Thermometer
- pH paper
- Ziplock bags

8/2001

PWIRP Training

46

## dpr Information to Collect

- Where incident occurred
- Time of day
- Weather conditions
- Surrounding land uses
- Animals involved, numbers, status

8/2001


PWIRP Training

47











## Duck Kill





- Discovery of the problem
  - Dead ducks discovered by hunters at a duck club
  - Reported to CA Dept. of Fish and Game
- Environmental Specialist investigated

8/2001
PWIRP Training
52




## Duck Kill






- Dead ducks found in a harvested corn field used as a duck club
- 200+ ducks killed

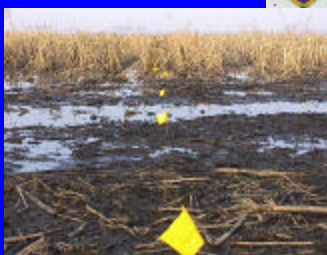
8/2001
PWIRP Training
53



## Duck Kill




- Samples collected by investigators
  - Bird carcasses
  - Water from the corn field
  - Soil from the corn field



8/2001
PWIRP Training
54


dpr Duck Kill



- Organophosphates and carbamates have a distinctive symptom in duck kills

8/2001 PWIRP Training 55

dpr Duck Kill



- Mallards and some pintails killed by phorate

8/2001 PWIRP Training 56

dpr Duck Kill

- Bird necropsy indicated:
  - no bullets or shotgun pellets
  - excellent body condition with abundant fat
  - no observable signs of external trauma
  - no internal lesions indicating disease
  - no avian botulism or cholera

8/2001 PWIRP Training 57

dpr Duck Kill

- Bird necropsy indicated:
  - brain cholinesterase depressed below 50% - indicating poisoning by a cholinesterase inhibitor
  - crops and gizzards contained grit and whole kernel corn with phorate residues

8/2001 PWIRP Training 58

dpr Duck Kill

- Soil and water samples tested for phorate
- All water samples were negative
- Soil samples were positive
- Gradient results indicated a 'hotspot'

8/2001 PWIRP Training 59

dpr Duck Kill

- Evidence pointed to phorate as the causal agent – but, how did it get there?
- The Ag Commissioner's Office and Dept of Pesticide Regulation contacted the grower
- Grower admitted applying phorate during corn season but had no idea how the ducks could be affected 7 months after application

8/2001 PWIRP Training 60



## Duck Kill



- CAC and DPR
  - Grower headquarters inspection
  - Grower storage inspection
  - Audit of pesticide dealer records
  - Review of grower's pesticide use reports (PURs)

8/2001

PWIRP Training

61



## Duck Kill



### What was found:

- Unlocked, unposted pesticide storage area
- Unlabelled containers with unknown pesticides
- Inadequate use, and training records
- Inaccurate PURs submitted by the grower

8/2001

PWIRP Training

62



## Duck Kill



- Pesticide storage revealed



## Duck Kill



- Pesticide storage revealed



## Duck Kill



- US Fish and Wildlife has the bigger stick
  - Not required to prove strict liability
  - Case went to US Attorney for review

8/2001

PWIRP Training

65



## Duck Kill



- CAC took an Agricultural Civil Penalty (ACP) for:
  - \$401 for storage violations
  - \$151 for paperwork violations

8/2001

PWIRP Training

66

